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## 2015 Pesticide Safety: Understanding GMO's

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# Understanding GMO's



# Overview

- What are GMOs ?
- Why GMO crops?
- What crops are available as GMOs?
- What can be in cranberry products
- Seed packets for homeowners
- Who regulates GMO crops
- What about labeling GMO crops
- <http://www.wcvb.com/chronicle/food-fears-gmo-foods/27352354>

# What does GMO mean?

- Crop varieties developed using genetic engineering techniques
- Allows the transfer of a specific gene or set of genes across genetic lines not possible with traditional breeding
- Extracting and isolating a specific DNA segment that makes up a gene and inserting it into plant cells and using tissue culture to create a plant
- Use traditional methods to create a population

# Why GMO crops?

Desirable traits:

- Disease and pest protection
- Herbicide resistance
- Better nutrition
- Drought resistance
- Improve storability

# Crops Available as GMOs

- Herbicide resistance
  - glyphosate (RR) (corn, soy, sugar beets, canola, alfalfa)
  - glufosinate (Liberty Link) (corn, cotton, soybean, canola)
- Insect resistance
  - Bt (corn, cotton)
- Disease resistance
  - Virus (sugar beet: BNYVV, papaya:PRSV, squash:CMV, ZYMV)
- Nutrition
  - Vitamin A (golden rice, yellow cassava)
  - Storability (less bruising potatoes, non browning apples)
- There are no GMO Cranberries!

# What might be in cranberry products

- Sugar from GMO sugar beets in cranberry juice
- High fructose corn syrup from GMO corn in cranberry juice
- Corn syrup from GMO corn in cranberry sauce
- High fructose corn syrup from GMO corn in cranberry juice

# Homeowner seed packets

- Do not contain GMO seeds
- Some garden centers advertise that they have seeds that are non-GMO
- But, so does everyone else



# Who regulates GMO crops?

- EPA –is it safe in the environment
  - Regulates genetic material incorporated into the plant:  
any long term impacts
- USDA – is there any risk to plant and animal health
  - Possibility of organism spreading into the environment?
- FDA – is it safe to eat (people and animals)
  - Substantially equivalent to non GMOs
  - Any allergens, toxicants, or nutritional issues

# GMO Labeling

- No Federal labeling requirement
- If FDA finds any differences in nutrition, allergens, toxicants then labeling would be required
- Currently the only food label that ensures no GMO is USDA Certified Organic Label
- Voters in four states have rejected mandatory labeling of food containing GMOs:
  - Washington (2013), California (2012), Colorado (2014), and Oregon (2014).
- Three states have passed mandatory labeling laws
  - Connecticut, Maine, and Vermont
  - Connecticut and Maine will not go into effect until other surrounding states pass similar laws, Vermont will go into effect July 1, 2016 (challenge in court)

# Arguments For and Against

- Supporters of GMO labeling laws:
  - consumers have the right to know what is in their food
  - in the absence of a federal regulation states should pass laws in order to provide this information
  - GMO foods pose a danger to the environment and human health
- Opponents of these laws :
  - USDA that have found no health or safety risks: laws unnecessary and misleading consumers
  - violate the First Amendment by mandating speech
  - laws would harm interstate commerce and increase the costs of food prices across the country
  - Cornell University Study: proposed ballot initiative in Colorado passed, it would have increased food costs for a family of 4 by \$500 per year

# Advertising

- Advertising can be confusing
- There are web sites that list products that are non-GMO (ex. “the Non-GMO Project”  
[www.nongmoproject.org](http://www.nongmoproject.org) )

# Thank You!



Photo: Ken Roseboro